WHAT IS CLAIMED IS:

1. A magnetoresistive film comprising:

an antiferromagnetic layer;

a first pinned ferromagnetic layer superposed on the antiferromagnetic layer;

an antiferromagnetic bonding layer superposed on the first pinned ferromagnetic layer;

a second pinned ferromagnetic layer superposed on the antiferromagnetic bonding layer;

a non-magnetic spacer layer superposed on the second pinned ferromagnetic layer;

a free ferromagnetic layer superposed on the non-magnetic spacer layer; and

a compound existing between the antiferromagnetic layer and the second pinned ferromagnetic layer.

2. The magnetoresistive film according to claim 1, wherein said antiferromagnetic layer is a polycrystalline layer of a regulated lattice structure.

3. The magnetoresistive film according to claim 2, wherein said compound comprises at least one of an oxide, a nitride, a sulfide and a carbide.

4. The magnetoresistive film according to claim 3, wherein said oxide, nitride, sulfide or carbide is a compound consisting of an element included in the antiferromagnetic bonding layer, and oxygen, nitrogen, sulfur or carbon.

5. The magnetoresistive film according to claim 4, wherein said antiferromagnetic bonding layer has a thickness

in the range between 0.5nm and 0.9nm.

6. The magnetoresistive film according to claim 5, wherein said non-magnetic spacer layer has a thickness in the range between 1.9nm and 2.3nm.

7. A method of making a magnetoresistive film, comprising:

forming a material layer on a substrate, said material layer containing an antiferromagnetic metallic element;

forming a first pinned ferromagnetic layer on the material layer;

forming an antiferromagnetic bonding layer on the first pinned ferromagnetic layer;

transforming a part of the antiferromagnetic bonding layer so as to generate a transformed layer at a surface of the antiferromagnetic bonding layer;

forming a second pinned ferromagnetic layer on the antiferromagnetic bonding layer;

forming a non-magnetic spacer layer on the second pinned ferromagnetic layer;

forming a free ferromagnetic layer on the non-magnetic spacer layer; and

effecting a heat treatment on at least the material layer.

8. The method of making according to claim 7, wherein said transformed layer comprises at least a compound selected from a group consisting of an oxide, a nitride, a sulfide and a carbide.

9. The method of making according to claim 7, wherein said

antiferromagnetic bonding layer is exposed to a reactive gas in forming the transformed layer.

10. The method of making according to claim 9, wherein said reactive gas consists of at least one of oxide and nitrogen.

11. A layered polycrystalline structure film comprising:

a first ferromagnetic crystal layer;

an antiferromagnetic bonding layer formed on the first ferromagnetic crystal layer based on epitaxy;

a second ferromagnetic crystal layer formed on the epitaxial antiferromagnetic bonding layer based on epitaxy; and

a compound existing between the antiferromagnetic bonding layer and the second ferromagnetic crystal layer.

12. The layered polycrystalline structure film according to claim 11, wherein said compound comprises at least one of an oxide, a nitride, a sulfide and a carbide.

13. The layered polycrystalline structure film according to claim 12, wherein said oxide, nitride, sulfide or carbide is a compound consisting of an element included in the antiferromagnetic bonding layer, and oxygen, nitrogen, sulfur or carbon.